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THE STRUCTURE OF BARNARD'S MEROPE NEBULA

E. E. Barnard (A. N. 3018) has first drawn attention to the interesting nebula situated 35" south of *Merope* in the *Pleiades*. Barnard describes it as a "comparatively bright round cometary nebula," and gives a drawing of its appearance in the 36-inch refractor. On three photographs taken by the writer in 1915 and 1916 with the 30-inch photographic refractor of the Allegheny Observatory this nebula is well visible and shows a much more complicated structure than Barnard's drawing indicates.

The reproduction accompanying this note (Plate VII), is enlarged from the plate of October 7, 1916 (exposure 1 hour). As the plate was not taken for the special purpose of studying this nebula, no effort had been made, unfortunately, to prevent reflection by the rear surface of the plate of the light of the bright star. This reflected light produces the bright ring around the star; most of the nebula, however, is situated inside of this ring. In the north (toward *Merope*) the nebula starts with a marked round condensation from which two arms, about 10" long, go out to the southeast and southwest forming nearly a right angle. Parallel to these and situated 7" farther south are two similar lines also forming a right angle. The western edge of the nebula is well marked by a rather strong line running north-south.

This nebula was looked up on many photographs of the *Pleiades* taken with different instruments between 1890 and 1921. Perhaps on account of too small a scale or too long or too short exposures the finer details, especially the two parallel lines with the right angle, are not visible on any of these except the Allegheny plates. All of them, however, confirm more or less clearly the general outline of the nebula which somewhat resembles a fan with its point in the north. Some of these photographs also show the condensation in the north and have the western edge of the nebula more marked.

It is difficult to escape the impression that the nebula has changed in appearance during the last thirty years; but the material at my disposition is not sufficient to prove such variability. Photographs of this difficult object require an instrument with great focal length and a refractor is preferable to a reflector as the diffraction rays of the bright star, produced by the latter, may disturb the appearance of the nebula.

ROBERT TRUMPLER.